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Standards of Performance for New Stationary Sources: VOC Emissions From Petroleum Refinery Wastewater Systems; Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 60

[AD-FRL 3387-1]

Standards of Performance for New Stationary Sources; VOC Emissions From Petroleum Refinery Wastewater Systems

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Standards of performance for volatile organic compound (VOC) emissions from petroleum refinery wastewater systems were proposed in the Federal Register on May 4, 1987 (52 FR 16334). This action promulgates standards of performance for VOC emissions from petroleum refinery wastewater systems. These standards implement Section 111 of the Clean Air Act and are based on the Administrator's determination that VOC emissions from petroleum refinery wastewater systems cause, or contribute significantly to, air pollution which may reasonably be anticipated to endanger public health or welfare. The intended effect of these standards is to require new, modified, and reconstructed petroleum refinery wastewater systems to implement a combination of equipment, work practice, design, and operational standards that represents the best demonstrated system of continuous emission reduction, considering costs, nonair quality health and environmental impact and energy requirements.

EFFECTIVE DATE: November 23, 1988.

Under section 307(b)(1) of the Clean Air Act, judicial review of the actions taken by this notice is available *only* by the filing of a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit within 60 days of today's publication of this rule. Under section 307(b)(2) of the Clean Air Act, the requirements that are the subject of today's notice may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: *Background information document.* The background information document (BID) for the promulgated standards may be obtained from the U.S. EPA Library (MD-35), Research Triangle Park, North Carolina 27711, telephone number (919) 541-2777. Please refer to "VOC Emissions from Petroleum Refinery Wastewater Systems—Background Information for Promulgated Standards" (EPA-450/3-85-001b). The promulgation BID contains: (1) A summary of all the public comments made on the proposed standards and the Administrator's response to the comments; (2) a summary of the changes made to the standards since proposal; and (3) the final Environmental Impact Statement, which summarizes the impacts of the standards.

Docket. A docket, number A-83-07, containing information considered by EPA in development of the promulgated standards, is available for public inspection between 8:00 a.m. and 3:30 p.m., Monday through Friday, at EPA's Central Docket Section, Room 4, South Conference Center, 401 M Street, SW., Washington, DC 20460. A reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Mr. James F. Durham, Chemicals and Petroleum Branch, for the technology aspects at (919) 541-5672 or, for the regulatory aspects, Mr. Doug Bell at (919) 541-5568 or Ms. Debbie W. Stackhouse at (919) 541-5258, Standards Development Branch, Emission Standards Division (MD-13), U.S. Environmental Protection Agency, Research Triangle Park, North Carolina 27711.

SUPPLEMENTARY INFORMATION: The following outline is provided to aid in reading the preamble to the final regulation:

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I. The standards

Standards of performance for new sources established under section 111 of the Clean Air Act reflect:

> * * * application of the best technological system of continuous emission reduction which (taking into consideration the cost of achieving such emission reduction, any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated [section 111(a)(1)].

For convenience, this will be referred to as "best demonstrated technology" or "BDT."

A. Affected Facilities

The affected facilities to which these standards apply include: (1) Individual drain systems; (2) oil-water separators; and (3) individual drain systems with their ancillary downstream wastewater components, including sewer lines and oil-water separators (i.e., an aggregate facility as described below). The emission points to be regulated include: Drain openings; junction box covers; sewer lines; oil-water separators; slop oil facilities, including tanks and conditioning equipment; any connections or openings of these components from which VOC vapors might be emitted; and VOC control devices used to comply with the standards.

All refinery wastewater system components downstream of the oil-water separator (with the exception of slop oil facilities) have been excluded from coverage under the regulation. This includes two groups of components: (1) Air flotation systems, including dissolved air flotation systems (DAF's) and induced air flotation systems (IAF's); and (2) equalization basins and other auxiliary tanks, basins, and equipment located between the oil-water separator and the downstream air flotation system.

Individual drain systems include all process drains and sewer lines connected to the first downstream junction box. Except as noted in § 60.690(b) of the regulation, the definition for individual drain systems includes all such drains systems and the common junction box, together with the associated sewer lines and other junction boxes down to the receiving oil-water separator. Each individual drain system constitutes a separate affected facility.

Oil-water separators include the separation tank (which also includes the forebay and other separation basins), skimmers, weirs, grit chambers, and sludge hoppers. Slop oil facilities, including tanks, are also included in the oil-water separator definition as are other storage vessels and auxiliary equipment, which receive or store oily wastewater and are located between individual drain systems and the oil-water separator. Each oil-water separator that receives oily wastewater also constitutes a separate affected facility.

Because refinery wastewater systems are highly interrelated sources of VOC emissions, VOC controls on entire wastewater systems prior to and including the oil-water separation system are environmentally prudent and

within the range of reasonable costs. Thus, the aggregate affected facility includes all the emission points that are functionally related down to and including the oil-water separators [that is, each individual drain system together with its ancillary downstream treatment components (including all drains and common junction box, together with their associated sewer lines and other junction boxes down to and including the primary and secondary oil-water separators)]. However, because the emission points covered by the standards are often constructed or modified on an individual basis, the affected facilities also include each individual drain system and each oil-water separator.

The standards exempt segregated stormwater sewer systems used for the sole purpose of collecting stormwater runoff from the plant premises. Each modified or reconstructed individual drain system that has a catch basin (as defined in § 60.691) in the existing configuration is exempt from the requirements for individual drain systems. The rule also exempts surge tanks that receive only stormwater runoff or non-contact cooling water, and any other tanks or basins that are used for storing non-VOC products such as caustic or coagulant.

B. Requirements of the Standards

For process drain systems, water seal controls must be installed on drains. Junction boxes must have tight-fitting covers. Junction box covers may include an open vent pipe of a specified size to relieve any buildup of vapor pressure. Each modified or reconstructed individual drain system that has a catch basin in the existing configuration is exempt from the requirements for individual drain systems. Sewer lines in all new, modified, and reconstructed individual drain systems are required to be covered to the interconnection with the receiving oil-water separator.

For oil-water separators with a design capacity to treat more than 16 liters per second (250 gallons per minute) of refinery wastewater, a fixed roof and closed vent system that directs vapors to a control device must be installed. The control device must be a vapor recovery or destruction device designed and operated to recover or destroy VOC with an efficiency of 95 percent or greater. Smaller oil-water separators must be equipped with a fixed roof, but need not install a closed vent system and control device.

The final rule has been clarified as to what is required when an oil-water separator that was already fully or partially covered at the time of proposal is modified or reconstructed. A modified or reconstructed oil-water separator shall be equipped with a roof over the entire separator tank. If, at the time of proposal (May 4, 1987), a separator was already equipped with a fixed roof over the entire separator tank and the facility is subsequently modified or reconstructed, the roof shall be tightly sealed. If the separator has a design capacity to treat 38 liters per second (600 gallons per minute) or more of refinery wastewater, the vapor space shall be vented to a VOC recovery or destruction control device. As an alternative to a fixed roof vented to a control device, a floating roof may be installed over the entire separator tank.

If a partial fixed roof was in place at the time of proposal over a portion of the separator tank and the oil-water separator has a maximum design capacity to treat 38 liters per second (600 gallons per minute) or more, upon modification or reconstruction the remainder of the oil-water separator shall be covered with a fixed roof and the vapor space shall be vented to a control device. As an alternative to a fixed roof and control device, the partial fixed roof may be removed and the entire oil-water separator covered with a floating roof.

If a partial fixed roof was in place over a portion of the separator tank at the time of proposal and the oil-water separator has a maximum design capacity to treat less than 38 liters per second (600 gallons per minute), upon modification or reconstruction the remainder of the separator tank shall be covered with either a floating roof or a tightly sealed fixed roof, but venting the vapor space to a VOC recovery or destruction device shall not be required.

The requirements for slop oil tanks have been revised slightly. Storage vessels including slop oil tanks are covered under this subpart only if they are not an affected facility under Subparts K, Ka, or Kb of 40 CFR Part 60. Storage vessels are required to be equipped with tightly sealed fixed roofs. The requirement in the proposed standards that slop oil be collected, stored, and transported in an enclosed system prior to reuse, disposal, or reentry to a process unit remains unchanged, except for the inclusion under this requirement of oily wastewater drawn from slop oil handling equipment.

Other auxiliary equipment associated with the operation of an oil-water separator is required to meet the same requirements as the oil-water separator.

Certain technologies are specified as equivalent alternatives to BDT as defined above. Completely closed drain systems with no openings to the atmosphere are allowed in lieu of water seal controls on process drains. In the case of oil-water separators, storage vessels, and other auxiliary equipment, floating roofs are allowed as an alternative technology. The roof is required to have a liquid-mounted primary seal and a secondary seal, with both seals meeting certain minimum gap requirements.

The definition of "volatile organic compound" has been deleted from the final regulation because it is already defined in § 60.2 of the General Provisions.

The aggregate affected facility definition included in the proposed standards has been retained, but includes two changes. First, air flotation systems and other equipment downstream of the oil-water separators (with the exception of slop oil facilities) are not covered under the final standards. Second, installation of a new individual drain system (consisting of process drains connected to the first common downstream junction box), rather than any physical or operational change, is necessary to constitute a "modification" to the aggregate facility. If a new individual drain system is constructed that results in increased emissions, the individual drain system together with its ancillary downstream components down to and including the oil-water separators is an affected facility subject to the requirements for aggregate facilities, even if no capital expenditure is involved. Other physical or operational changes to the wastewater system components would constitute a modification if emissions increase and a capital expenditure is made on the facility.

As explained above, under the aggregate affected facility definition, a new individual drain system or an emissions increase from an existing drain system could cause existing downstream components to be subject to the standards. Only if the total emissions increase is offset would the wastewater components be exempt from the aggregate facility definition. Offsetting of emission increases would have to occur within the associated existing wastewater treatment facilities. Owners or operators of the facility would be required to demonstrate that emission offsets claimed at one facility would not be suppressed and thereby released to the air at some downstream location. Even though an individual drain system and existing downstream components may be exempt under the aggregate definition as a result of offsets, the new, modified or

reconstructed individual drain system may constitute a separate affected facility under the individual drain system definition. Also, a downstream oil-water separator may constitute a separate affected facility under the oil-water separator affected facility definition.

Initial performance tests are required only for flares used as VOC control devices to comply with the standards. The performance test required for flares is a test to confirm operation according to design specifications and is not an emission test.

Initial and periodic visual or physical inspections of water seals in drains are required. After the initial inspection, water seals on drains that are in active service are to be inspected each month. Water seals on drains not in active service are to be inspected weekly. Alternatively, if a tightly sealed cap or plug is installed on the inactive drain, only semiannual visual inspections are required. Initial and semiannual visual inspections are also required for covers on junction boxes, joints and covers on sewer lines, and fixed roof seals, doors, hatches and other openings on oil-water separators or auxiliary equipment to identify cracks, gaps, or other problems that could result in VOC emissions.

Owners or operators who install floating roofs on oil-water separators, storage vessels, or auxiliary equipment must determine the maximum gap widths between the primary seal and the wall of the separator and between the secondary seal and the wall of the separator within 60 days of the initial installation of the floating roof and introduction of refinery wastewater or 60 days after the equipment is placed back in service. These maximum gap widths are to be determined once every 5 years thereafter for the primary seal, and once every year thereafter for the secondary seal. If any oil-water separator ceases to receive or treat wastewater for a period of 1 year or more, subsequent introduction of refinery wastewater will be considered an initial introduction, requiring gap widths to be measured within 60 days.

Initial and semiannual monitoring of emissions from closed vent systems using a portable hydrocarbon analyzer is required to determine if there are detectable emissions (500 ppm above background levels). The EPA Method 21 would be the applicable test method. The requirement to ensure "no detectable emissions" from seams, joints, seals, and gaskets on junction boxes, oil-water separators, and other equipment having atmospheric or pressure control vents has been deleted in the final standards.

To ensure that a vapor recovery or destruction device is operating properly, the owner or operator is required to monitor the vapor flow to the control device, outlet VOC concentration or organics levels (or inlet and outlet for carbon adsorbers), or other parameters. All gauging and sampling devices on systems equipped with a control device must be kept gas-tight, except when gauging or sampling is taking place.

The reporting and recordkeeping requirements of the General Provisions apply. In addition, the design and operating specifications for all equipment used to comply with these standards are required to be maintained in a readily accessible location. Such specifications shall include the parameters to be monitored on all systems equipped with a closed vent system and control device. Initial and semiannual reports are required that certify that all inspections have been carried out. Records of each inspection where a water seal is dry or breached, a cap or plug is out of place, emissions are detected, or a problem is identified, including information about the repairs or corrective action taken, must be maintained in a readily accessible location and submitted semiannually in a summary report.

The recordkeeping and reporting requirements applicable to closed vent systems have been revised to require that certain information about the operation of the control device be maintained. For facilities using a thermal incinerator, continuous records must be maintained of the temperature of the gas stream in the combustion zone of the incinerator. Also, records of all 3-hour periods during which the average temperature of the gas stream in the combustion zone of the thermal incinerator is more than 28 °C (50 °F) below the design temperature must be maintained and reported semiannually. Similarly, for facilities using catalytic incinerators, continuous records of the temperature of the gas stream both upstream and downstream of the catalyst bed must be maintained. Also, records of all 3-hour periods during which the average temperature measured before the catalyst bed of a catalytic incinerator is more than 28 °C (50 °F) below the design gas stream temperature, and all 3-hour periods during which the average temperature difference across the catalyst bed is less than 80 percent of the design temperature difference across the catalyst bed must be maintained and reported semiannually. For facilities using a carbon adsorber, continuous records of the VOC concentration level or reading of organics of the control device outlet gas stream or inlet and outlet gas stream must be maintained. Records of all 3-hour periods during which the average VOC concentration level in the exhaust gases of a carbon adsorber is more than 20 percent greater than the design concentration level must be reported semiannually to the Administrator.

C. Selection of Format for the Standards

For petroleum refinery wastewater systems, a combination of equipment, work practice, design, and operational standards was selected. Under this approach, equipment representing BDT is required. However, procedures are included to allow alternative control equipment to be used if equivalent emission reductions can be demonstrated. Certain equivalent alternatives are allowed in the standards.

The standards require certain work practices to ensure that the control equipment installed is properly maintained. For example, regular inspections of water seals by owners or operators are required to ensure that proper water levels are maintained. Design standards are required for control devices to ensure that the type of system installed has the design capability to achieve emission reductions determined by EPA to reflect BDT.

Performance standards would allow for some flexibility in complying with the standards, since any control technique may be used if it achieves the level of emission reduction represented by the standard. However, for most refinery fugitive VOC emission sources, such as refinery wastewater systems, it is not feasible to prescribe performance standards because measurement of emissions from these sources is impractical or economically infeasible. Based on the considerations discussed below, it is not feasible to prescribe performance standards for refinery wastewater systems except where a flare is used as the control device.

Determining compliance with standards of performance for individual drain systems would be prohibitively expensive. Each drain would need to be bagged and vented in a manner that would allow the measurement of pollutant concentrations and flowrates. The cost of conducting performance tests on the numerous drains in an entire refinery or even a single refinery process unit would be unreasonably expensive.

In the case of oil-water separators, the principal limitation with standards of performance concerns the difficulty in

measuring emission levels. Emission levels can vary considerably over relatively short periods of time depending on inlet oil concentrations, wastewater flowrates through the separator, and other factors. Even though in some cases the flowrate to an oil-water separator may remain relatively constant, the VOC emissions change periodically as the time of day or upstream process conditions change. In addition, vapor recovery or destruction devices are not expected to be dedicated to a specific wastewater stream. Emissions measurement of a nondedicated system would be complicated and perhaps meaningless. Thus, standards of performance would require continuously measuring emission levels. This would be an unreasonably expensive and impracticable approach to setting the proposed standards.

II. Summary of Impacts

A. Environmental Impacts

Approximately 100 newly constructed process unit drain systems are expected to be covered by the standards during the 5-year period 1985–1989. These systems will include approximately 5,000 drains and 1,000 junction boxes. Approximately 30 new oil-water separators are also expected to be covered by the standards during the 5-year period. In addition, it is expected that a total of at least 18 modified or reconstructed process drain systems will be affected by the standards. A small number of modified or reconstructed oil-water separators will also be affected by the standards.

The standards will reduce emissions of VOC from process drain systems by about 50 percent in comparison to the emissions that would result in the absence of the standards. An emission reduction of about 88 percent would result from oil-water separators in comparison to the emissions that would result under existing State and local regulations. For separators that would be built in States that do not currently regulate them, the emission reductions achieved by these standards would generally exceed 95 percent for individual facilities. The overall emission reduction from all facilities covered by the standards is estimated to be 2,020 Mg/yr (2,225 tons/yr) in the fifth year of implementation. This is about 60 Mg/yr (65 tons/yr) less than the proposed standards and reflects the exclusion of air flotation systems from the final standards.

The VOC emitted from wastewater treatment systems contribute to atmospheric photochemical reactions. These reactions form ozone, which is harmful to human health and welfare. Reduction of VOC emissions from newly constructed, modified, and reconstructed refinery wastewater systems would at the same time reduce emissions of any toxic constituents which may be in the wastewater streams.

The standards will not have an adverse impact on water quality. The control techniques will not interfere with the basic water treatment function of oil-water separators and air flotation systems. Further, suppression of VOC in the wastewater by covering separators will not result in a significant increase in organic loading to subsequent treatment process. Volatile organic compounds have a greater affinity for the oil phase of wastewater than for the water phase. To the extent that control techniques suppress emissions of VOC, these VOC will mostly be captured in the slop oil that is removed at the oil-water separator and reused or recycled.

Further, there will be no significant amount of solid waste produced as a result of the standards. There has been no change to the standards since proposal that would affect the water quality and solid waste impacts of the standards.

B. Energy Impacts

The standards will have essentially no energy impacts on the operation of process drain systems. The standards will result in consumption of small quantities of steam, water, electricity, and fuel gas for operation of control devices to destroy VOC captured from oil-water separators. There has been no change to the standards since proposal that would have a significant adverse impact on energy consumption by affected facilities.

C. Cost Impacts

The capital cost of the controls required by this regulation for individual drain systems is based on a uniform cost for each drain and junction box for installing p-traps, covers, and vent pipes. Therefore, the cost to a facility is proportional to the size of the refinery wastewater system serving the facility. All costs are presented in third quarter 1983 dollars. For a typical plant, the capital cost of the individual drain system would be $7,600 for a new process drain and junction box system, and $21,400 for retrofitting a process drain and junction box emissions reduction system. The annualized costs of these systems for the typical refinery wastewater system would be $1,850 for the new drain and junction box system, and $5,250 for a retrofitted system. The cost effectiveness of controls on a new drain and junction box system would be $300/Mg ($270/ton) of VOC controlled, and for a retrofit system would be $850/Mg ($770/ton).

For oil-water separators, the capital and annualized costs have increased slightly since proposal due to the addition of the cost of fuel gas to purge the oil-water separator to a vapor recovery or destruction device. The capital cost of covering the separator and installing vapor control would be $30,300 for a new facility using an existing control device for vapor control. The annualized cost of the new system with existing controls would be $22,800, with an average cost effectiveness of $140/Mg ($130/ton) of VOC removed.

For retrofitting an oil-water separator with controls to comply with the regulations, the capital cost would be $41,800 for a system using existing vapor controls. The annualized cost of the retrofit system using existing controls would be $25,800, with an average cost effectiveness of $160/Mg ($150/ton) of VOC.

The national fifth year annualized costs of the regulation to affected facilities are approximately $200,000 for retrofit facilities and approximately $1.1 million for new facilities.

D. Economic Impacts

The standards for petroleum refinery wastewater systems will have very little impact upon either the firms that refine petroleum products or on the consuming public. Market forces alone will greatly affect the price of refined petroleum products. These factors include the price of domestic and imported crude oil and the proportions of each used by domestic refineries; the prices of alternative sources of energy; the growth of the United States and international economies; and the costs of other inputs into the refinery industry. If the costs of the standards are also considered, the prices of refined products would show very little additional increase, estimated approximately $0.03 per cubic meter (less than $0.01/barrel), or less than 0.1 percent. No significant reduction in demand for refined products or in the profitability of growth of the refining industry is expected to result from the implementation of this regulation.

The environmental, energy, cost, and economic impacts are discussed in greater detail in the two BID volumes: (1) "VOC Emissions From Petroleum Refinery Wastewater Systems—Background Information for Proposed Standards" (EPA–450/3–85–001a), and (2) "VOC Emissions From Petroleum Refinery Wastewater Systems—

Background Information for Promulgated Standards" (EPA–450/3–85–001b).

III. Public Participation

Prior to proposal of the standards, interested parties were advised by public notice in the **Federal Register** (49 FR 66807, June 29, 1984) of a meeting of the National Air Pollution Control Techniques Advisory Committee to discuss the VOC emissions from petroleum refinery wastewater systems recommended for proposal. This meeting was held on August 29, 1984. The meeting was open to the public and each attendee was given an opportunity to comment on the standards recommended for proposal.

The standards were proposed and published in the **Federal Register** on May 4, 1987 (52 FR 16334). The preamble to the proposed standards discussed the availability of the proposal BID, which described in detail the regulatory alternatives considered and the impacts of those alternatives. Public comments were solicited at the time of proposal, and copies of the proposal BID were distributed to interested parties.

Opportunity for interested persons to present data, views, or arguments concerning the proposed standards at a public hearing was provided. However, there were no requests for such a hearing and, therefore, no hearing was held.

The comment period extended from May 4, 1987 to July 20, 1987. Twelve comment letters were received concerning issues relative to the proposed standards of performance for petroleum refinery wastewater systems. The comments have been carefully considered and, where determined to be appropriate by the Administrator, changes have been made in the proposed standards.

IV. Significant Comments and Changes to the Proposed Standards

Comments on the proposed standards were received from industry representatives, one trade association, and one equipment vendor. A detailed discussion of these comments and responses can be found in the promulgation BID. The summary of comments and responses in the BID serves as the basis for the revisions that have been made to the standards between proposal and promulgation.

The major comments and responses have been summarized in this preamble. Most of the comment letters contained multiple comments. The major comments have been divided into the following areas: Applicability of the Standards, Definition of Affected Facility and Modification/Reconstruction, Selection of Control Technology, and Monitoring Requirements. Responses to comments not discussed below can be found in the promulgation BID to this rulemaking (see "Addresses" section).

A. Applicability of the Standards

One commenter recommended that a provision be included in the standards that would exempt facilities with oily wastewater streams containing only heavier hydrocarbon compounds. Streams containing only these compounds would be expected to have lower emissions than streams containing lighter, more volatile compounds. The commenter specifically recommended that this exemption be in the form of a minimum vapor pressure requirement of 1.5 psia. Another commenter suggested that the exemption be implemented through the use of a minimum relative volatility level. Without such an exemption, the commenters stated, the standards would impose an economic burden on some facilities without accomplishing a significant reduction in VOC emissions.

A cutoff based on vapor pressure or other measure of volatility for oily wastewater streams was considered during the development of the proposed regulation, but was not adopted because the total vapor pressure of the organics in the wastewater has the potential to vary widely and may change with wastewater loading, composition, and temperature. Among other factors that influence the rate of volatilization are ambient temperature, wind speed over the basin, and the thickness of the oil layer.

An industry survey showed that the organic loading can vary by orders of magnitude for the same wastewater system (see Docket Item No. II–B–45). Although there are no data to reflect the degree of change in organic composition of the wastewater, these changes can result from the loading variations, upset conditions, changes in operation, and the addition of new process units. For these reasons, a vapor pressure cutoff has not been included in the final standards.

Seven commenters objected to the requirement for installation of fixed roofs on DAF's. The concerns range from poor cost effectiveness (mainly due to low emissions potential); to safety (because of safety concerns, it may be necessary to purge the fixed roof to a VOC recovery or destruction device); to operation (roof would interfere with operation, reduce downstream water quality); and to maintenance (roof would hinder regular maintenance).

In response to these comments, EPA undertook a thorough reexamination of the technical, economic, and environmental bases of the application of the NSPS to air flotation systems, focusing specifically on the safety problems and the low emission potential of air flotation systems. As a result of this reexamination, the final standards have been revised to exempt air flotation systems, including both DAF's and IAF's.

The analysis undertaken by the Agency included a telephone survey of refiners with fixed roofs installed on their DAF's, as well as a review of the responses to a telephone survey of vendors conducted prior to the proposal. Further, DAF float disposal methods were reviewed to evaluate potential downstream impacts of controlling these systems. As a result of this analysis, the Agency has determined that a DAF controlled with a tightly sealed roof may pose safety concerns that were not adequately addressed by the proposed standards. An unvented fixed roof may present an explosion and fire hazard in some types of air flotation systems due to the buildup of explosive vapors inside the cover. By purging the space beneath the fixed roof with another gas, such as nitrogen, these safety concerns can be alleviated. For a system with the vapor space purged and vented to a control device, the incremental cost effectiveness was estimated to be over $13,000/Mg ($11,800/ton) of VOC. Consequently, EPA concluded there is no cost-effective method of VOC destruction or removal demonstrated for DAF's.

Fixed roof controls on air flotation systems serve to suppress VOC emissions temporarily, rather than to destroy VOC. The VOC emissions that are suppressed temporarily by the fixed roof system are merely transported downstream through air flotation effluent and froth. Consequently, about 60 Mg/year (65 tons/year) of the VOC emission reduction shown in the proposal BID actually represents the VOC suppressed temporarily by fixed roof controls on air flotation systems, but emitted downstream at uncontrolled emission points.

The Agency did consider DAF froth recycling as an alternative method for VOC control. However, recycling of froth has not been demonstrated to be a practical method of disposal for all refiners because the froth may contain additives such as coagulants. The majority of refiners landfarm or landfill froth rather than recycle it.

Taken together, these considerations led the Agency to decide that the focus

of the standards should be on the control of emissions from individual drain systems and oil-water separators, including slop oil facilities, rather than on air flotation systems. Therefore, air flotation systems are not covered by the final standards.

One commenter stated that equalization basins located upstream from the air flotation system should not be included in the definition of DAF's. According to this commenter, these are very large basins and it would be difficult to place covers on them. A cover could also be dangerous due to the large surface area and amount of potential air leaks into the cover.

Equalization basins that are part of an air flotation system have been excluded from the final standards for essentially the same reasons that air flotation systems themselves have been excluded (see above). The recommended method of VOC control was a fixed roof which, like DAF's, would suppress VOC emissions temporarily, only to be emitted at some uncontrolled location downstream. Thus, there are no cost-effective methods of VOC recovery or destruction that have been demonstrated for these facilities.

Two commenters requested clarification of the applicability of the proposed standards to slop oil from oil-water separators and of the requirement in the proposed standards that slop oil be collected and reused or disposed of in an enclosed system. The commenters stated that these requirements could extend the applicability of the standards to segments of the refinery operation beyond the wastewater system itself, and could potentially encompass the entire refinery in cases where slop oil is combined with refinery feedstock. The commenters suggested that the provision for slop oil be dropped unless a technical basis for justifying such a requirement can be demonstrated.

The final standards-have been revised to clarify the scope of the regulation of slop oil and slop oil tanks. In the final standards, storage vessels, including slop oil tanks auxiliary to oil-water separators, are regulated. These storage vessels are required to be covered with a tightly sealed fixed roof. The fixed roof can be vented with a pressure relief valve that has been set at the maximum pressure necessary for proper system operation, but such that the pressure relief valve is not venting continuously. Such a requirement is both technically feasible and cost effective in view of the VOC emissions potential of these uncovered facilities.

Emissions from slop oil are regulated under this subpart until the slop oil reenters a process unit or is disposed of. The slop oil and oily wastewater drawn from slop oil handling equipment must be collected, stored, transported, reused, recycled, or disposed of in an enclosed system (i.e., it must not be open to the atmosphere). Once slop oil is returned to the process, or is disposed of, it is no longer within the scope of this regulation. Another limitation on the applicability of this subpart to storage vessels, including slop oil tanks, is posed by the requirements of Subparts K, Ka, or Kb that regulate volatile organic liquid storage vessels, depending on the size of the facility and the vapor pressure of the liquid being stored. The NSPS for petroleum refinery wastewater systems does not apply to storage vessels subject to the requirements of Subparts K, Ka, or Kb, although the transport, recycling, reuse, or disposal of slop oil remains subject to the standards for petroleum refinery wastewater systems and must be kept in an enclosed system.

B. Definition of Affected Facility/ Modification

Seven commenters recommended that the definition of an aggregate facility as a separate affected facility be deleted from the proposed regulation. The commenters stated that a refinery wastewater system is normally designed with excess capacity and VOC emissions are more related to surface area than to oil volume. Further, the commenters stated that there are no data to show that an increase in the loading of VOC-bearing wastes necessarily results in an increase in refinery wastewater VOC emissions. Therefore, in the commenters' view, it is not appropriate to require additional controls as a result of increased throughput or the addition of one new pump, process drain or process unit. The commenters recommended that the standards should be triggered only when the capacity of the wastewater system is expanded.

The EPA disagrees with the commenters' assertion that an increase in the loading of VOC-bearing wastes does not result in an increase in refinery wastewater system VOC emissions. Although the amount of wastewater surface area exposed to the atmosphere does affect emissions, the concentration of VOC in the wastewater along with other factors, such as vapor pressure and temperature, are also factors in determining the emission potential. As a result, with increases in throughput, the volatile organic loading also increases when the surface area remains constant. In EPA's view, VOC emissions can increase with increased loading even if the capacity of the wastewater system (i.e., surface area) is not expanded.

However, in order to ensure that the application of the standards to downstream components of the wastewater system is triggered only by significant changes to the system that result in emission increases, EPA has amended the definition of affected facility in the final regulation. Under the proposed regulation, any physical or operational change made to an aggregate facility that resulted in an emissions increase would have constituted a modification, thereby making the standards applicable to the changed facility and all regulated downstream components of the wastewater system. Under the final regulation, the definition of affected facility still includes the "aggregate facility," but the definition has been amended to clarify what constitutes a modification that would bring downstream components under the regulation.

In the final regulation, a new paragraph (b) has been added to § 60.690 that states that a modification to an aggregate affected facility occurs when a new individual drain system (consisting of process drains connected to the first common downstream junction box) is constructed and tied into an existing refinery wastewater system. Under the final regulation, the new individual drain system and the components of the system downstream from the new individual drain system become an aggregate affected facility. This definition will lead to the control of VOC emissions from new individual drain systems constructed to serve new process units within the refinery, as well as from those constructed to serve existing process units.

The new paragraph (b) also specifies that the capital expenditure exemption contained in § 60.14(e)(2) of the General Provisions does not apply for the addition of a new individual drain system under this regulation. Section 60.14(e)(2) states that an increase in the production rate of an existing facility is not considered a modification if the increase does not involve a capital expenditure. A capital expenditure for petroleum refineries is considered to be any expenditure greater than 7 percent of the total capital cost of the facility. The intent of the capital expenditure clause is to exclude minor changes from coverage under the NSPS. The addition of a new individual drain system is considered a significant change to the aggregate facility, because emissions are significantly increased from downstream components of the

wastewater facility. Therefore, under the final regulation, the addition of a new individual drain system to an existing wastewater facility that results in increased emissions would constitute a modification of an aggregate facility, even if no capital expenditure is involved. The capital expenditure exemption is retained for all other physical or operational changes to wastewater treatment system components. A small physical or operational change within an existing individual drain system (such as the addition of a pump) that does not constitute a capital expenditure on the aggregate facility would not be considered a modification of the aggregate facility. However, such changes may still constitute a modification to the individual facility (i.e., the individual drain system).

C. Selection of Control Technology

One commenter stated that the technical basis for installing sewer seals for emission reduction is flawed. As described by the commenter, vapors trapped by the sewer drain seals will be emitted via the junction box to prevent the buildup of potentially explosive vapors. The commenter recommended that since sewer seals will not materially reduce emissions, this requirement should be removed from the final standards.

The overall emission reductions from process drain seals are greater than from controls on junction boxes because of the greater number of process drains within a process unit. The greater number of drains exposes more surface area and thereby provides greater opportunity for volatilization.

Based on the assumption that molecular diffusion and convection are the primary factors affecting VOC emissions from drains and junction boxes, and in light of the potential safety problems of water seals on junction boxes, vent pipes are allowed to provide safe and effective emissions control from junction boxes. Because the rate of molecular diffusion and convection are influenced by the length of the vent pipe and design of the vent pipe opening, EPA evaluated the effects of different size vent pipes. Since VOC diffusion is inversely proportional to the diffusion path length, the greater the vent pipe length, the lower the rate at which molecular diffusion can transport VOC into the air. Also, the diameter of the vent pipe opening affects the emissions due to convection. Therefore, to restrict emissions due to the effects of molecular diffusion and convection from junction box vents, EPA has determined that a vent pipe having a maximum diameter of 10.2 centimeters (4 inches) and a minimum length of 90 centimeters (3 feet) will be required. Thus, a vent pipe is allowed to avoid safety problems, but a maximum diameter and minimum length are specified in order to restrict emissions due to the effects of molecular diffusion and convection.

D. Monitoring Requirements

Two commenters stated that the requirement for weekly inspection of water seals on drains is unnecessarily stringent and would present a significant burden to the industry given the large number and location of these drains in a refinery. According to the commenters, drains are often located in areas that are difficult or unsafe to inspect routinely. The commenters recommended that the inspection frequency for process drains be reduced to once a month. The commenters further stated that water seals also tend to be maintained by precipitation, maintenance washing, and use.

The EPA agrees that drains which are kept in active wastewater service will be maintained primarily by the refinery wastewater that is received from a process unit, as well as by precipitation and maintenance washing. Inspections are still required, however, to make sure that the water seals are present or that the seal pots are properly capped. Therefore, the inspection frequency has been reduced from weekly to monthly for drains in active service. For drains that are removed from active service, there is no assurance that precipitation or maintenance washing will maintain the water seal. Consequently, a weekly visual or physical inspection of the water seal is still required unless a tightly sealed cap or plug is installed. Only semiannual inspections are required for tightly sealed caps or plugs on drains not in active service to ensure that caps or plugs are properly in place.

Three commenters stated that the applicability of "no detectable emissions" to specific components of the refinery wastewater system and the associated requirement for monitoring using a portable hydrocarbon monitor to detect such emissions was inappropriate and that visual inspection would be sufficient. Specifically, the commenters objected to the application of the standards to equipment with fixed roof controls that are not required to be vented to a vapor recovery or destruction control device, such as junction boxes and some oil-water separators.

The final standards have been revised to delete the "no detectable emissions" monitoring requirement for junction boxes, oil-water separators, and other components of the affected refinery wastewater system that are not vented to a vapor recovery or destruction control device. the Agency agrees with the comment that visual inspection coupled with follow-up repair and maintenance is sufficient to prevent leaks of VOC through faulty or poorly maintained joints, seals, or gaskets. Therefore, the final standards are the same as proposed for visual inspection of all joints, seams, access doors, and other emission sources on junction boxes, sewer lines, oil-water separators and any other components of the refinery wastewater system that are subject to the standards.

For oil-water separators with closed vent systems and other closed systems, such as closed drain systems, the "no detectable emissions" requirement specified in the proposed rule is maintained in the final rule. For closed vent systems, monitoring and inspection would be required of joints, seams, access doors, and other potential emission sources when the facility becomes subject to the standards, and semiannually thereafter to ensure that there are "no detectable emissions indicated by an instrument reading of less than 500 ppm above background levels." The EPA Method 21 would be the applicable test method for these facilities.

V. Administrative

The docket is an organized and complete file of all the information considered by EPA in the development of this rulemaking. The docket is a dynamic file, since material is added throughout the rulemaking development. The docketing system is intended to allow members of the public and industries involved to readily identify and locate documents so that they effectively participate in the rulemaking process. Along with the statement of basis and purpose of the proposed and promulgated standards and EPA responses to significant comments, the contents of the docket, except for interagency review materials, will serve as the record in case of judicial review [section 307(d)(7)(A)].

The effective date of this regulation is November 23, 1988. Section 111 of the Clean Air Act provides that standards of performance or revisions thereof become effective upon promulgation and apply to affected facilities of which the construction or modification was commenced after the date of proposal, May 4, 1987.

As prescribed by section 111, the promulgation of these standards was preceded by the Administrator's

determination pursuant to 40 CFR 60.16 that fugitive sources of VOC emissions from petroleum refineries, including wastewater systems, contribute significantly to air pollution that may reasonably be anticipated to endanger public health or welfare (44 FR 49222, August 21, 1979, and as amended by 47 FR 31876, July 23, 1982). In accordance with section 117 of the Act, publication of these promulgated standards was preceded by consultation with appropriate advisory committees, independent experts and Federal departments and agencies.

This regulation will be reviewed 4 years from the date of promulgation as required by the Clear Air Act. This review will include an assessment of such factors as the need for integration with other programs, the existence of alternative methods, enforceability, improvements in emission control technology, and reporting requirements.

Section 317 of the Clean Air Act requires the Administrator to prepare an economic impact assessment for any new source standard of performance promulgated under section 111(b) of the Act. An economic impact assessment was prepared for this regulation and for other regulatory alternatives. All aspects of the assessment were considered in the formulation of the standards to ensure that cost was carefully considered in determining BDT. The economic impact assessment is included in the BID for the proposed standards.

Information collection requirements associated with this regulation (those included in 40 CFR Part 60, Subpart A and Subpart QQQ) have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.* and have been assigned OMB control number (2060–0172).

Public reporting burden for this collection of information is estimated to be 8,430 hours annually, with an average of 140 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Chief, Information Policy Branch, PM–223, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

Under Executive Order 12291, EPA is required to judge whether a regulation is a "major rule" and therefore subject to the requirements of a regulatory impact analysis (RIA). The Agency has determined that this regulation would result in none of the adverse economic effects set forth in Section 1 of the Executive Order as grounds for finding a regulation to be a "major rule." The industry-wide annualized costs in the fifth year after the standards would go into effect would be about $1.1 million, less than the $100 million established as the first criterion for a major regulation in the Executive Order. The estimated price increase of less than 0.1 percent associated with the proposed standards would not be considered a "major increase in costs or prices" specified as the second criterion in the Executive Order. The economic analysis of the proposed standards' effect on the industry did not indicate any significant adverse effects on competition, investment, productivity, employment, innovation, or the ability of U.S. firms to compete with foreign firms (the third criterion in the Executive Order). The Agency has, therefore, concluded that this regulation is not a "major rule" under Exectuive Order 12291.

This regulation was submitted to OMB for review as required by Executive Order 12291. Any written comments from OMB to EPA and any EPA response to those comments are available for public inspection in Docket No. A–82–39, EPA's Central Docket Section, South Conference Center, Room 4, 401 M Street, SW., Washington, DC 20460.

The Regulatory Flexibility Act of 1980 requires the identification of potentially adverse impacts of Federal regulations upon small business entities. The Act specifically requires the completion of a Regulatory Flexibility Analysis in those instances where small business impacts are possible. Because these standards impose no adverse economic impacts, a Regulatory Flexibility Analysis has not been conducted.

Pursuant to the provisions of 5 U.S.C. 605(b), I hereby certify that this rule will not have a significant economic impact on a substantial number of small entities.

List of Subjects in 40 CFR Part 60

Air pollution control, Intergovernmental relations, Petroleum refining, Reporting and recordkeeping requirements.

Date: November 8, 1988.

Lee M. Thomas,

Administrator.

PART 60—AMENDED

For the reasons set forth in the preamble, 40 CFR Part 60 is amended as follows:

1. The authority citation for Part 60 continues to read as follows:

Authority: Secs. 101, 111, 114, 116, 301, Clean Air Act as amended (42 U.S.C. 7401, 7411, 7414, 7416, 7601).

2. By adding a new subpart as follows:

Subpart QQQ—Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems

Sec.

60.690 Applicability and designation of affected facility.
60.691 Definitions.
60.692–1 Standards: General.
60.692–2 Standards: Individual drain systems.
60.692–3 Standards: Oil-Water separators.
60.692–4 Standards: Aggregate facility.
60.692–5 Standards: Closed vent systems and control devices.
60.692–6 Standards: Delay of repair.
60.692–7 Standards: Delay of compliance.
60.693–1 Alternative standards for individual drain systems.
60.693–2 Alternative standards for oil-water separators.
60.694 Permission to use alternative means of emission limitation.
60.695 Monitoring of operations.
60.696 Performance test methods and procedures and compliance provisions.
60.697 Recordkeeping requirements.
60.698 Reporting requirements.
60.699 Delegation of authority.

Subpart QQQ—Standards of Performance for VOC Emissions From Petroleum Refinery Wastewater Systems

§ 60.690 Applicability and designation of affected facility.

(a)(1) The provisions of this subpart apply to affected facilities located in petroleum refineries for which construction, modification, or reconstruction is commenced after May 4, 1987.

(2) An individual drain system is a separate affected facility.

(3) An oil-water separator is a separate affected facility.

(4) An aggregate facility is a separate affected facility.

(b) Notwithstanding the provisions of 40 CFR 60.14(e)(2), the construction or installation of a new individual drain system shall constitute a modification to an affected facility described in § 60.690(a)(4). For purposes of this paragraph, a new individual drain

system shall be limited to all process drains and the first common junction box.

§ 60.691 Definitions.

As used in this subpart, all terms not defined herein shall have the meaning given them in the Act or in Subpart A of 40 CFR Part 60, and the following terms shall have the specific meanings given them.

"Active service" means that a drain is receiving refinery wastewater from a process unit that will continuously maintain a water seal.

"Aggregate facility" means an individual drain system together with ancillary downstream sewer lines and oil-water separators, down to and including the secondary oil-water separator, as applicable.

"Catch basin" means an open basin which serves as a single collection point for stormwater runoff received directly from refinery surfaces and for refinery wastewater from process drains.

"Closed vent system" means a system that is not open to the atmosphere and is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from an emission source to a control device.

"Completely closed drain system" means an individual drain system that is not open to the atmosphere and is equipped and operated with a closed vent system and control device complying with the requirements of § 60.692–5.

"Control device" means an enclosed combustion device, vapor recovery system or flare.

"Fixed roof" means a cover that is mounted to a tank or chamber in a stationary manner and which does not move with fluctuations in wastewater levels.

"Floating roof" means a pontoon-type or double-deck type cover that rests on the liquid surface.

"Gas-tight" means operated with no detectable emissions.

"Individual drain system" means all process drains connected to the first common downstream junction box. The term includes all such drains and common junction box, together with their associated sewer lines and other junction boxes, down to the receiving oil-water separator.

"Junction box" means a manhole or access point to a wastewater sewer system line.

"No detectable emissions" means less than 500 ppm above background levels, as measured by a detection instrument in accordance with Method 21 in Appendix A of 40 CFR Part 60.

"Non-contact cooling water system" means a once-through drain, collection and treatment system designed and operated for collecting cooling water which does not come into contact with hydrocarbons or oily wastewater and which is not recirculated through a cooling tower.

"Oil-water separator" means wastewater treatment equipment used to separate oil from water consisting of a separation tank, which also includes the forebay and other separator basins, skimmers, weirs, grit chambers, and sludge hoppers. Slop oil facilities, including tanks, are included in this term along with storage vessels and auxiliary equipment located between individual drain systems and the oil-water separator. This term does not include storage vessels or auxiliary equipment which do not come in contact with or store oily wastewater.

"Oily wastewater" means wastewater generated during the refinery process which contains oil, emulsified oil, or other hydrocarbons. Oily wastewater originates from a variety of refinery processes including cooling water, condensed stripping steam, tank draw-off, and contact process water.

"Petroleum" means the crude oil removed from the earth and the oils derived from tar sands, shale, and coal.

"Petroleum refinery" means any facility engaged in producing gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, or other products through the distillation of petroleum, or through the redistillation of petroleum, cracking, or reforming unfinished petroleum derivatives.

"Sewer line" means a lateral, trunk line, branch line, ditch, channel, or other conduit used to convey refinery wastewater to downstream components of a refinery wastewater treatment system. This term does not include buried, below-grade sewer lines.

"Slop oil" means the floating oil and solids that accumulate on the surface of an oil-water separator.

"Storage vessel" means any tank, reservoir, or container used for the storage of petroleum liquids, including oily wastewater.

"Stormwater sewer system" means a drain and collection system designed and operated for the sole purpose of collecting stormwater and which is segregated from the process wastewater collection system.

"Wastewater system" means any component, piece of equipment, or installation that receives, treats, or processes oily wastewater from petroleum refinery process units.

"Water seal controls" means a seal pot, p-leg trap, or other type of trap filled with water that has a design capability to create a water barrier between the sewer and the atmosphere.

§ 60.692–1 Standards: General.

(a) Each owner or operator subject to the provisions of this subpart shall comply with the requirements of §§ 60.692–1 to 60.692–5 and with §§ 60.693–1 and 60.693–2, except during periods of startup, shutdown, or malfunction.

(b) Compliance with §§ 60.692–1 to 60.692–5 and with §§ 60.693–1 and 60.693–2 will be determined by review of records and reports, review of performance test results, and inspection using the methods and procedures specified in § 60.696.

(c) Permission to use alternative means of emission limitation to meet the requirements of §§ 60.692–2 through 60.692–4 may be granted as provided in § 60.694.

(d)(1) Stormwater sewer systems are not subject to the requirements of this subpart.

(2) Ancillary equipment, which is physically separate from the wastewater system and does not come in contact with or store oily wastewater, is not subject to the requirements of this subpart.

(3) Non-contact cooling water systems are not subject to the requirements of this subpart.

(4) An owner or operator shall demonstrate compliance with the exclusions in paragraphs (d)(1), (d)(2), and (d)(3) of this section as provided in § 60.697 (h), (i), and (j).

§ 60.692–2 Standards: Individual drain systems.

(a)(1) Each drain shall be equipped with water seal controls.

(2) Each drain in active service shall be checked by visual or physical inspection initially and monthly thereafter for indications of low water levels or other conditions that would reduce the effectiveness of the water seal controls.

(3) Except as provided in paragraph (a)(4) of this section, each drain out of active service shall be checked by visual or physical inspection initially and weekly thereafter for indications of low water levels or other problems that could result in VOC emissions.

(4) As an alternative to the requirements in paragraph (a)(3) of this section, if an owner or operator elects to install a tightly sealed cap or plug over a drain that is out of service, inspections shall be conducted initially and semiannually to ensure caps or plugs are in place and properly installed.

(5) Whenever low water levels or missing or improperly installed caps or plugs are identified, water shall be added or first efforts at repair shall be made as soon as practicable, but not later than 24 hours after detection, except as provided in § 60.692–6.

(b)(1) Junction boxes shall be equipped with a cover and may have an open vent pipe. The vent pipe shall be at least 90 cm (3 ft) in length and shall not exceed 10.2 cm (4 in) in diameter.

(2) Junction box covers shall have a tight seal around the edge and shall be kept in place at all times, except during inspection and maintenance.

(3) Junction boxes shall be visually inspected initially and semiannually thereafter to ensure that the cover is in place and to ensure that the cover has a tight seal around the edge.

(4) If a broken seal or gap is identified, first effort at repair shall be made as soon as practicable, but not later than 15 calendar days after the broken seal or gap is identified, except as provided in § 60.692–6.

(c)(1) Sewer lines shall not be open to the atmosphere and shall be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces.

(2) The portion of each unburied sewer line shall be visually inspected initially and semiannually thereafter for indication of cracks, gaps, or other problems that could result in VOC emissions.

(3) Whenever cracks, gaps, or other problems are detected, repairs shall be made as soon as practicable, but not later than 15 calendar days after identification, except as provided in § 60.692–6.

(d) Except as provided in paragraph (e) of this section, each modified or reconstructed individual drain system that has a catch basin in the existing configuration prior to May 4, 1987 shall be exempt from the provisions of this section.

(e) Refinery wastewater routed through new process drains and a new first common downstream junction box, either as part of a new individual drain system or an existing individual drain system, shall not be routed through a downstream catch basin.

§ 60.692–3 Standards: Oil-water separators.

(a) Each oil-water separator tank, slop oil tank, storage vessel, or other auxiliary equipment subject to the requirements of this subpart shall be equipped and operated with a fixed roof, which meets the following specifications, except as provided in paragraph (d) of this section or in § 60.693–2.

(1) The fixed roof shall be installed to completely cover the separator tank, slop oil tank, storage vessel, or other auxiliary equipment with no separation between the roof and the wall.

(2) The vapor space under a fixed roof shall not be purged unless the vapor is directed to a control device.

(3) If the roof has access doors or openings, such doors or openings shall be gasketed, latched, and kept closed at all times during operation of the separator system, except during inspection and maintenance.

(4) Roof seals, access doors, and other openings shall be checked by visual inspection initially and semiannually thereafter to ensure that no cracks or gaps occur between the roof and wall and that access doors and other openings are closed and gasketed properly.

(5) When a broken seal or gasket or other problem is identified, first efforts at repair shall be made as soon as practicable, but not later than 15 calendar days after it is identified, except as provided in § 60.692–6.

(b) Each oil-water separator tank or auxiliary equipment with a design capacity to treat more than 16 liters per second (250 gpm) of refinery wastewater shall, in addition to the requirements in paragraph (a) of this section, be equipped and operated with a closed vent system and control device, which meet the requirements of § 60.692–5, except as provided in paragraph (c) of this section or in § 60.693–2.

(c)(1) Each modified or reconstructed oil-water separator tank with a maximum design capacity to treat less than 38 liters per second (600 gpm) of refinery wastewater which was equipped and operated with a fixed roof covering the entire separator tank or a portion of the separator tank prior to May 4, 1987 shall be exempt from the requirements of paragraph (b) of this section, but shall meet the requirements of paragraph (a) of this section, or may elect to comply with paragraph (c)(2) of this section.

(2) The owner or operator may elect to comply with the requirements of paragraph (a) of this section for the existing fixed roof covering a portion of the separator tank and comply with the requirements for floating roofs in § 60.693–2 for the remainder of the separator tank.

(d) Storage vessels, including slop oil tanks and other auxiliary tanks that are subject to the requirements of 40 CFR Subparts K, Ka, or Kb, are not subject to the requirements of this section.

(e) Slop oil from an oil-water separator tank and oily wastewater from slop oil handling equipment shall be collected, stored, transported, recycled, reused, or disposed of in an enclosed system. Once slop oil is returned to the process unit or is disposed of, it is no longer within the scope of this subpart. Equipment used in handling slop oil shall be equipped with a fixed roof meeting the requirements of paragraph (a) of this section.

(f) Each oil-water separator tank, slop oil tank, storage vessel, or other auxiliary equipment that is required to comply with paragraph (a) of this section, and not paragraph (b) of this section, may be equipped with a pressure control valve as necessary for proper system operation. The pressure control valve shall be set at the maximum pressure necessary for proper system operation, but such that the value will not vent continuously.

§ 60.692–4 Standards: Aggregate facility.

A new, modified, or reconstructed aggregate facility shall comply with the requirements of §§ 60.692–2 and 60.692–3.

§ 60.692–5 Standards: Closed vent systems and control devices.

(a) Enclosed combustion devices shall be designed and operated to reduce the VOC emissions vented to them with an efficiency of 95 percent or greater or to provide a minimum residence time of 0.75 seconds at a minimum temperature of 816°C (1,500°F).

(b) Vapor recovery systems (for example, condensers and adsorbers) shall be designed and operated to recover the VOC emissions vented to them with an efficiency of 95 percent or greater.

(c) Flares used to comply with this subpart shall comply with the requirements of 40 CFR 60.18.

(d) Closed vent systems and control devices used to comply with provisions of this subpart shall be operated at all times when emissions may be vented to them.

(e)(1) Closed vent systems shall be designed and operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as determined during the initial and semiannual inspections by the methods specified in § 60.696.

(2) Closed vent systems shall be purged to direct vapor to the control device.

(3) A flow indicator shall be installed on a vent stream to a control device to ensure that the vapors are being routed to the device.

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(4) All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place.

(5) When emissions from a closed system are detected, first efforts at repair to eliminate the emissions shall be made as soon as practicable, but not later than 30 calendar days from the date the emissions are detected, except as provided in § 60.692–6.

§ 60.692–6 Standards: Delay of repair.

(a) Delay of repair of facilities that are subject to the provisions of this subpart will be allowed if the repair is technically impossible without a complete or partial refinery or process unit shutdown.

(b) Repair of such equipment shall occur before the end of the next refinery or process unit shutdown.

§ 60.692–7 Standards: Delay of compliance.

(a) Delay of compliance of modified individual drain systems with ancillary downstream treatment components will be allowed if compliance with the provisions of this subpart cannot be achieved without a refinery or process unit shutdown.

(b) Installation of equipment necessary to comply with the provisions of this subpart shall occur no later than the next scheduled refinery or process unit shutdown.

§ 60.693–1 Alternative standards for individual drain systems.

(a) An owner or operator may elect to construct and operate a completely closed drain system.

(b) Each completely closed drain system shall be equipped and operated with a closed vent system and control device complying with the requirements of § 60.692–5.

(c) An owner or operator must notify the Administrator in the report required in 40 CFR 60.7 that the owner or operator has elected to construct and operate a completely closed drain system.

(d) If an owner or operator elects to comply with the provisions of this section, then the owner or operator does not need to comply with the provisions of §§ 60.692–2 or 60.694.

(e)(1) Sewer lines shall not be open to the atmosphere and shall be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces.

(2) The portion of each unburied sewer line shall be visually inspected initially and semiannually thereafter for indication of cracks, gaps, or other problems that could result in VOC emissions.

(3) Whenever cracks, gaps, or other problems are detected, repairs shall be made as soon as practicable, but not later than 15 calendar days after identification, except as provided in § 60.692–6.

§ 60.693–2 Alternative standards for oil-water separators.

(a) An owner or operator may elect to construct and operate a floating roof on an oil-water separator tank, slop oil tank, storage vessel, or other auxiliary equipment subject to the requirements of this subpart which meets the following specifications.

(1) Each floating roof shall be equipped with a closure device between the wall of the separator and the roof edge. The closure device is to consist of a primary seal and a secondary seal.

(i) The primary seal shall be a liquid-mounted seal.

(A) A liquid-mounted seal means a foam- or liquid-filled seal mounted in contact with the liquid between the wall of the separator and the floating roof.

(B) The gap width between the primary seal and the separator wall shall not exceed 3.8 cm (1.5 in.) at any point.

(C) The total gap area between the primary seal and the separator wall shall not exceed 67 cm^2/m (3.2 $in.^2/ft$) of separator wall perimeter.

(ii) The secondary seal shall be above the primary seal and cover the annular space between the floating roof and the wall of the separator.

(A) The gap width between the secondary seal and the separator wall shall not exceed 1.3 cm (0.5 in.) at any point.

(B) The total gap area between the secondary seal and the separator wall shall not exceed 6.7 cm^2/m (0.32 $in.^2/ft$) of separator wall perimeter.

(iii) The maximum gap width and total gap area shall be determined by the methods and procedures specified in § 60.696(d).

(A) Measurement of primary seal gaps shall be performed within 60 calendar days after initial installation of the floating roof and introduction of refinery wastewater and once every 5 years thereafter.

(B) Measurement of secondary seal gaps shall be performed within 60 calendar days of initial introduction of refinery wastewater and once every year thereafter.

(iv) The owner or operator shall make necessary repairs within 30 calendar days of identification of seals not meeting the requirements listed in paragraphs (a)(1) (i) and (ii) of this section.

(2) Except as provided in paragraph (a)(4) of this section, each opening in the roof shall be equipped with a gasketed cover, seal, or lid, which shall be maintained in a closed position at all times, except during inspection and maintenance.

(3) The roof shall be floating on the liquid (i.e., off the roof supports) at all times except during abnormal conditions (i.e., low flow rate).

(4) The floating roof may be equipped with one or more emergency roof drains for removal of stormwater. Each emergency roof drain shall be fitted with a slotted membrane fabric cover that covers at least 90 percent of the drain opening area or a flexible fabric sleeve seal.

(5)(i) Access doors and other openings shall be visually inspected initially and semiannually thereafter to ensure that there is a tight fit around the edges and to identify other problems that could result in VOC emissions.

(ii) When a broken seal or gasket on an access door or other opening is identified, it shall be repaired as soon as practicable, but not later than 30 calendar days after it is identified, except as provided in § 60.692–6.

(b) An owner or operator must notify the Administrator in the report required by 40 CFR 60.7 that the owner or operator has elected to construct and operate a floating roof under paragraph (a) of this section.

(c) For portions of the oil-water separator tank where it is infeasible to construct and operate a floating roof, such as the skimmer mechanism and weirs, a fixed roof meeting the requirements of § 60.692–3(a) shall be installed.

(d) Except as provided in paragraph (c) of this section, if an owner or operator elects to comply with the provisions of this section, then the owner or operator does not need to comply with the provisions of §§ 60.692–3 or 60.694 applicable to the same facilities.

§ 60.694 Permission to use alternative means of emission limitation.

(a) If, in the Administrator's judgment, an alternative means of emission limitation will achieve a reduction in VOC emissions at least equivalent to the reduction in VOC emissions achieved by the applicable requirement in § 60.692, the Administrator will publish in the **Federal Register** a notice permitting the use of the alternative means for purposes of compliance with that requirement. The notice may condition the permission on requirements related to the operation

and maintenance of the alternative means.

(b) Any notice under paragraph (a) of this section shall be published only after notice and an opportunity for a hearing.

(c) Any person seeking permission under this section shall collect, verify, and submit to the Administrator information showing that the alternative means achieves equivalent emission reductions.

§ 60.695 Monitoring of operations.

(a) Each owner or operator subject to the provisions of this subpart shall install, calibrate, maintain, and operate according to manufacturer's specifications the following equipment, unless alternative monitoring procedures or requirements are approved for that facility by the Administrator.

(1) Where a thermal incinerator is used for VOC emission reduction, a temperature monitoring device equipped with a continuous recorder shall be used to measure the temperature of the gas stream in the combustion zone of the incinerator. The temperature monitoring device shall have an accuracy of 1 percent of the temperature being measured in °C or ±0.5 °C (±1.0 °F), whichever is greater.

(2) Where a catalytic incinerator is used for VOC emission reduction, temperature monitoring devices, each equipped with a continuous recorder shall be used to measure the temperature in the gas stream immediately before and after the catalyst bed of the incinerator. The temperature monitoring devices shall have an accuracy of 1 percent of the temperature being measured in °C or ±0.5 °C (±1.0 °F), whichever is greater.

(3) Where a carbon adsorber is used for VOC emissions reduction, a monitoring device that continuously indicates and records the VOC concentration level or reading of organics in the exhaust gases of the control device outlet gas stream or inlet and outlet gas stream shall be used.

(4) Where a flare is used for VOC emission reduction, the owner or operator shall comply with the monitoring requirements of 40 CFR 60.18(f)(2).

(b) Where a VOC recovery device other than a carbon adsorber is used to meet the requirements specified in § 60.692–5(a), the owner or operator shall provide to the Administrator information describing the operation of the control device and the process parameter(s) that would indicate proper operation and maintenance of the device. The Administrator may request further information and will specify appropriate monitoring procedures or requirements.

(c) An alternative operational or process parameter may be monitored if it can be demonstrated that another parameter will ensure that the control device is operated in conformance with these standards and the control device's design specifications.

§ 60.696 Performance test methods and procedures and compliance provisions.

(a) Before using any equipment installed in compliance with the requirements of §§ 60.692–2, 60.692–3, 60.692–4, 60.692–5, or 60.693, the owner or operator shall inspect such equipment for indications of potential emissions, defects, or other problems that may cause the requirements of this subpart not to be met. Points of inspection shall include, but are not limited to, seals, flanges, joints, gaskets, hatches, caps, and plugs.

(b) The owner or operator of each source that is equipped with a closed vent system and control device as required in § 60.692–5 (other than a flare) is exempt from § 60.8 of the General Provisions and shall use Method 21 to measure the emission concentrations, using 500 ppm as the no detectable emission limit. The instrument shall be calibrated each day before using. The calibration gases shall be:

(1) Zero air (less than 10 ppm of hydrocarbon in air), and

(2) A mixture of either methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane.

(c) The owner or operator shall conduct a performance test initially, and at other times as requested by the Administrator, using the test methods and procedures in § 60.18(f) to determine compliance of flares.

(d) After installing the control equipment required to meet § 60.693–2(a) or whenever sources that have ceased to treat refinery wastewater for a period of 1 year or more are placed back into service, the owner or operator shall determine compliance with the standards in § 60.693–2(a) as follows:

(1) The maximum gap widths and maximum gap areas between the primary seal and the separator wall and between the secondary seal and the separator wall shall be determined individually within 60 calendar days of the initial installation of the floating roof and introduction of refinery wastewater or 60 calendar days after the equipment is placed back into service using the following procedure when the separator is filled to the design operating level and when the roof is floating off the roof supports.

(i) Measure seal gaps around the entire perimeter of the separator in each place where a 0.32 cm (0.125 in.) diameter uniform probe passes freely (without forcing or binding against seal) between the seal and the wall of the separator and measure the gap width and perimetrical distance of each such location.

(ii) The total surface area of each gap described in (d)(1)(i) of this section shall be determined by using probes of various widths to measure accurately the actual distance from the wall to the seal and multiplying each such width by its respective perimetrical distance.

(iii) Add the gap surface area of each gap location for the primary seal and the secondary seal individually, divide the sum for each seal by the nominal perimeter of the separator basin and compare each to the maximum gap area as specified in § 60.693–2.

(2) The gap widths and total gap area shall be determined using the procedure in paragraph (d)(1) of this section according to the following frequency:

(i) For primary seals, once every 5 years.

(ii) For secondary seals, once every year.

§ 60.697 Recordkeeping requirements.

(a) Each owner or operator of a facility subject to the provisions of this subpart shall comply with the recordkeeping requirements of this section. All records shall be retained for a period of 2 years after being recorded unless otherwise noted.

(b)(1) For individual drain systems subject to § 60.692–2, the location, date, and corrective action shall be recorded for each drain when the water seal is dry or otherwise breached, when a drain cap or plug is missing or improperly installed, or other problem is identified that could result in VOC emissions, as determined during the initial and periodic visual or physical inspection.

(2) For junction boxes subject to § 60.692–2, the location, date, and corrective action shall be recorded for inspections required by § 60.692–2(b) when a broken seal, gap, or other problem is identified that could result in VOC emissions.

(3) For sewer lines subject to §§ 60.692–2 and 60.693–1(e), the location, date, and corrective action shall be recorded for inspections required by §§ 60.692–2(c) and 60.693–1(e) when a problem is identified that could result in VOC emissions.

(c) For oil-water separators subject to § 60.692–3, the location, date, and

corrective action shall be recorded for inspections required by by § 60.692–3(a) when a problem is identified that could result in VOC emissions.

(d) For closed vent systems subject to § 60.692–5 and completely closed drain systems subject to § 60.693–1, the location, date, and corrective action shall be recorded for inspections required by § 60.692–5(e) during which detectable emissions are measured or a problem is identified that could result in VOC emissions.

(e)(1) If an emission point cannot be repaired or corrected without a process unit shutdown, the expected date of a successful repair shall be recorded.

(2) The reason for the delay as specified in § 60.692–6 shall be recorded if an emission point or equipment problem is not repaired or corrected in the specified amount of time.

(3) The signature of the owner or operator (or designee) whose decision it was that repair could not be effected without refinery or process shutdown shall be recorded.

(4) The date of successful repair or corrective action shall be recorded.

(f)(1) A copy of the design specifications for all equipment used to comply with the provisions of this subpart shall be kept for the life of the source in a readily accessible location.

(2) The following information pertaining to the design specifications shall be kept.

(i) Detailed schematics, and piping and instrumentation diagrams.

(ii) The dates and descriptions of any changes in the design specifications.

(3) The following information pertaining to the operation and maintenance of closed drain systems and closed vent systems shall be kept in a readily accessible location.

(i) Documentation demonstrating that the control device will achieve the required control efficiency during maximum loading conditions shall be kept for the life of the facility. This documentation is to include a general description of the gas streams that enter the control device, including flow and VOC content under varying liquid level conditions (dynamic and static) and manufacturer's design specifications for the control device. If an enclosed combustion device with a minimum residence time of 0.75 seconds and a minimum temperature of 816°C (1,500°F) is used to meet the 95-percent requirement, documentation that those conditions exist is sufficient to meet the requirements of this paragraph.

(ii) A description of the operating parameter (or parameters) to be monitored to ensure that the control device will be operated in conformance with these standards and the control device's design specifications and an explanation of the criteria used for selection of that parameter (or parameters) shall be kept for the life of the facility.

(iii) Periods when the closed vent systems and control devices required in § 60.692 are not operated as designed, including periods when a flare pilot does not have a flame shall be recorded and kept for 2 years after the information is recorded.

(iv) Dates of startup and shutdown of the closed vent system and control devices required in § 60.692 shall be recorded and kept for 2 years after the information is recorded.

(v) The dates of each measurement of detectable emissions required in §§ 60.692, 60.693, or 60.692–5 shall be recorded and kept for 2 years after the information is recorded.

(vi) The background level measured during each detectable emissions measurement shall be recorded and kept for 2 years after the information is recorded.

(vii) The maximum instrument reading measured during each detectable emission measurement shall be recorded and kept for 2 years after the information is recorded.

(viii) Each owner or operator of an affected facility that uses a thermal incinerator shall maintain continuous records of the temperature of the gas stream in the combustion zone of the incinerator and records of all 3–hour periods of operation during which the average temperature of the gas stream in the combustion zone is more than 28°C (50°F) below the design combustion zone temperature, and shall keep such records for 2 years after the information is recorded.

(ix) Each owner or operator of an affected facility that uses a catalytic incinerator shall maintain continuous records of the temperature of the gas stream both upstream and downstream of the catalyst bed of the incinerator, records of all 3-hour periods of operation during which the average temperature measured before the catalyst bed is more than 28°C (50°F) below the design gas stream temperature, and records of all 3-hour periods during which the average temperature difference across the catalyst bed is less than 80 percent of the design temperature difference, and shall keep such records for 2 years after the information is recorded.

(x) Each owner or operator of an affected facility that uses a carbon adsorber shall maintain continuous records of the VOC concentration level or reading of organics of the control device outlet gas stream or inlet and outlet gas stream and records of all 3-hour periods of operation during which the average VOC concentration level or reading of organics in the exhaust gases, or inlet and outlet gas stream, is more than 20 percent greater than the design exhaust gas concentration level, and shall keep such records for 2 years after the information is recorded.

(g) If an owner or operator elects to install a tightly sealed cap or plug over a drain that is out of active service, the owner or operator shall keep for the life of a facility in a readily accessible location, plans or specifications which indicate the location of such drains.

(h) For stormwater sewer systems subject to the exclusion in § 60.692–1(d)(1), an owner or operator shall keep for the life of the facility in a readily accessible location, plans or specifications which demonstrate that no wastewater from any process units or equipment is directly discharged to the stormwater sewer system.

(i) For ancillary equipment subject to the exclusion in § 60.692–1(d)(2), an owner or operator shall keep for the life of a facility in a readily accessible location, plans or specifications which demonsrate that the ancillary equipment does not come in contact with or store oily wastewater.

(j) For non-contact cooling water systems subject to the exclusion in § 60.692–1(d)(3), and owner or operator shall keep for the life of the facility in a readily accessible location, plans or specifications which demonstrate that the cooling water does not contact hydrocarbons or oily wastewater and is not recirculated through a cooling tower.

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§ 60.698 Reporting requirements.

(a) An owner or operator electing to comply with the provisions of § 60.693 shall notify the Administrator of the alternative standard selected in the report required in § 60.7.

(b)(1) Each owner or operator of a facility subject to this subpart shall submit to the Administrator within 60 days after initial startup a certification that the equipment necessary to comply with these standards has been installed and that the required initial inspections or tests of process drains, sewer lines, junction boxes, oil-water separators, and closed vent systems and control devices have been carried out in accordance with these standards. Thereafter, the owner or operator shall submit to the Administrator semiannually a certification that all of

the required inspections have been carried out in accordance with these standards.

(2) Each owner or operator of an affected facility that uses a flare shall submit to the Administrator within 60 days after initial startup, as required under § 60.8(a), a report of the results of the performance test required in § 60.696(c).

(c) A report that summarizes all inspections when a water seal was dry or otherwise breached, when a drain cap or plug was missing or improperly installed, or when cracks, gaps, or other problems were identified that could result in VOC emissions, including information about the repairs or corrective action taken, shall be submitted initially and semiannually thereafter to the Administrator.

(d) As applicable, a report shall be submitted semiannually to the Administrator that indicates:

(1) Each 3-hour period of operation during which the average temperature of the gas stream in the combustion zone of a thermal incinerator, as measured by the temperature monitoring device, is more than 28 °C (50 °F) below the design combustion zone temperature,

(2) Each 3-hour period of operation during which the average temperature of the gas stream immediately before the catalyst bed of a catalytic incinerator, as measured by the temperature monitoring device, is more than 28°C (50°F) below the design gas stream temperature, and any 3-hour period during which the average temperature difference across the catalyst bed (i.e., the difference between the temperatures of the gas stream immediately before and after the catalyst bed), as measured by the temperature monitoring device, is less than 80 percent of the design temperature difference, or,

(3) Each 3-hour period of operation during which the average VOC concentration level or reading of organics in the exhaust gases from a carbon adsorber is more than 20 percent greater than the design exhaust gas concentration level or reading.

(e) If compliance with the provisions of this subpart is delayed pursuant to § 60.692–7, the notification required under 40 CFR 60.7(a)(4) shall include the estimated date of the next scheduled refinery or process unit shutdown after the date of notification and the reason why compliance with the standards is technically impossible without a refinery or process unit shutdown.

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§ 60.699 Delegation of authority.

(a) In delegating implementation and enforcement authority to a State under section 111(c) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities which will not be delegated to States:

§ 60.694 Permission to use alternative means of emission limitations.

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